

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

I. STATUS OF THE CLAIMS

Various of the claims are amended herein.

Claims 2 and 21 are canceled herein.

In view of the above, it is respectfully submitted that claims 1, 3-9, 11-20 and 22-31 are currently pending.

II. REJECTION OF CLAIMS 20-22 UNDER 35 USC 101

The Examiner asserts that claims 20-22 are not limited to a practical application. However, it is respectfully submitted that the Examiner's comments are not fully understood. For example, claims 20 and 22 recite "simulating phenomena of the combined particle." **The simulation of phenomena of a particle is a practical application.** For example, by simulating a phenomena, the phenomena can be studied and analyzed. As an example, on page 2, first paragraph of the specification, it is disclosed that:

"It is often required to simulate a phenomena The simulated phenomena can include, for example, crystal growth, surface adsorption and surface damage of a material or structure."

Therefore, it should be understood that the simulation of a phenomena is a very important and practical application, having many uses.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. REJECTION OF CLAIMS 1-9 AND 11-32 UNDER 35 USC 112, FIRST PARAGRAPH

The Examiner indicates that the meaning of the “combined particle” is unclear. Therefore, various of claims are amended herein to clarify that the combined particle is formed of adsorbate particles and substrate particles. See, for example, claim 1.

Moreover, it should be understood that an Applicant is allowed to be his/her own lexicographer. Thus, the term “combined particle” as recited in various of the claims is simply intended to refer to a particle formed of adsorbate particles and substrate particles. However, if the Examiner believes that the term “combined” in “combined particle” is causing confusion, the Applicant may agree to change the term to a more suitable term if one is suggested by the Examiner.

It is believed that these amendments to the claims substantially clarify the invention, and will overcome many of the Examiner’s concerns. For example, the Examiner requests a working model of the invention, so that the Examiner can determine how the combined particle is formed. However, in view of the amendments to the claims, it is now clear that, in various embodiments of the invention, a combined particle is formed of adsorbate particles and substrate particles. Moreover, it should be noted that the claims do not recite the act of “combining.” Therefore, it is respectfully submitted that there is no need for the Applicants to submit a working model of the invention.

Regarding claim 29, the Examiner asserts that the recited “smaller particles” are unclear. Therefore, claim 29 is amended to recite the smaller particles as being “atoms.” See, for example, steps S422, S423 and S424, and the corresponding disclosure on page 28, line 9, through page 30, line 8, of the specification. Similarly, claims 6 and 8 are amended to recite the smaller particles as being “atoms.”

Regarding claim 27, the Examiner asserts that it is unclear how a substrate particle can include a free particle since, as asserted by the Examiner, by definition a substrate particle is

connected to a lattice. To avoid the confusion surrounding claim 27, this claim is amended so that it no longer recites the “free particle.”

In view of the above, it is respectfully submitted that the rejection is overcome.

IV. REJECTION OF CLAIMS 1-3, 5-6, 8-9, 12, 15-18, 20-23 AND 29 UNDER 35 USC 112, SECOND PARAGRAPH

As indicated above, various of the claims are amended herein to clarify that the combined particle is formed of adsorbate particles and substrate particles. See, for example, claim 1. It is respectfully submitted that these amendments overcome much of the confusion as to the meaning of a “combined particle.”

Regarding claim 29, the Examiner asserts that the recitation of “each adsorbate particle includes a plurality of smaller particles” is not clear. Please note that claim 29 is amended to recite the smaller particles as being atoms. This recitation can be understood, for example, by referring to step S422 in FIG. 14, and the corresponding disclosure on page 28, lines 9-20, of the specification.

In view of the above, it is respectfully submitted that the rejection is overcome.

V. REJECTION OF CLAIMS 1-9 AND 11-32 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER MISAKA IN VIEW OF BAUMANN, THE EXAMINER’S OWN EXPERIENCE AND THE TAKING OF OFFICIAL NOTICE

Baumann discloses that incoming spheres nearby the surface are generated by a Monte Carlo method.

In Item 72 on page 34 of the outstanding Office Action, the Examiner asserts that it is inherent in Baumann that the incoming spheres have a source. However, assuming that some source exists for the spheres, Baumann does not disclose how to use such a source in a manner as in the present invention.

Misaka discloses a “particle transport model” for use in a simulator.

However, neither Baumann nor Misaka, taken individually or in combination, discloses a particle formed of both adsorbate particles and substrate particles, where each adsorbate particle has a corresponding emission source, and that the adsorbate particles are generated in accordance with the positions of the emission sources, as recited in various of the claims as amended herein.

In view of the above, it is respectfully submitted that the rejection is overcome.

VI. REJECTION OF CLAIMS 1, 12, 16, 20 AND 22-24 UNDER 35 USC 102(B) AS BEING ANTICIPATED BY REEVES (1983) OR COHEN (1992)

Please note that various of the claims are amended herein to clarify that the combined particle is formed of adsorbate particles and substrate particles.

Reeves relates to modeling “fuzzy” objects such as clouds, smoke, water and fire. Reeves does not disclose the use of adsorbate particles or substrate particles.

Moreover, neither Reeves nor Cohen, taken individually or in combination, discloses a particle formed of both adsorbate particles and substrate particles, where each adsorbate particle has a corresponding emission source, and that the adsorbate particles are generated in accordance with the positions of the emission sources, as recited in various of the claims as amended herein.

Moreover, Reeves relates to a different subject matter than Cohen, and should not be combined with Cohen.

In view of the above, it is respectfully submitted that the rejection is overcome.

VII. REJECTION OF CLAIMS 1, 12, 16, 20 AND 22-24 UNDER 35 USC 102(E) AS BEING ANTICIPATED BY KINEMA/SIM

Please note that various of the claims are amended herein to clarify that the combined particle is formed of adsorbate particles and substrate particles.

Kinema/Sim does not relate to a particle formed of both adsorbate particles and substrate particles, where each adsorbate particle has a corresponding emission source, and that the adsorbate particles are generated in accordance with the positions of the emission sources, as recited in various of the claims as amended herein.

In view of the above, it is respectfully submitted that the rejection is overcome.

VIII. REJECTION OF CLAIMS 2-9, 11, 13-15, 17-19, 21, 25-26 AND 28-32 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER OHIRA OR YAMADA IN VIEW OF KINEMA/SIM OR REEVES OR COHEN AND THE TAKING OF OFFICIAL NOTICE.

Neither Ohira nor Yamada disclose or suggest how to set an emission source for an adsorbate particle, or how to generate the adsorbate particle in accordance with the position of the emission source, as recited in various of the claims as amended herein.

Moreover, the above comments for distinguishing over the other cited references also apply here.

In view of the above, it is respectfully submitted that the rejection is overcome.

IX. REJECTION OF CLAIM 27 UNDER 35 USC 103 AS BEING UNPATENTABLE OVER OHIRA IN VIEW OF KINEMA/SIM OR REEVES OR COHEN, AND THE TAKING OF OFFICIAL NOTICE

The above comments for distinguishing over the various cited references also apply here.

Serial No.: 08/889,440

Docket No.: 21.1837

In view of the above, it is respectfully submitted that the rejection is overcome.

X. CONCLUSION

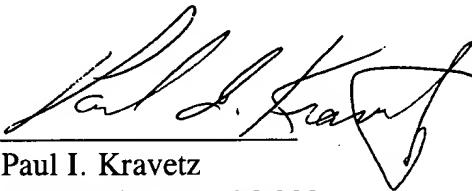
In view of the above, it is respectfully submitted that the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

If any further fees are due by the filing of this Amendment, please charge same to deposit account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY

Date: September 25, 2000 ²⁵ ^{PIK}

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